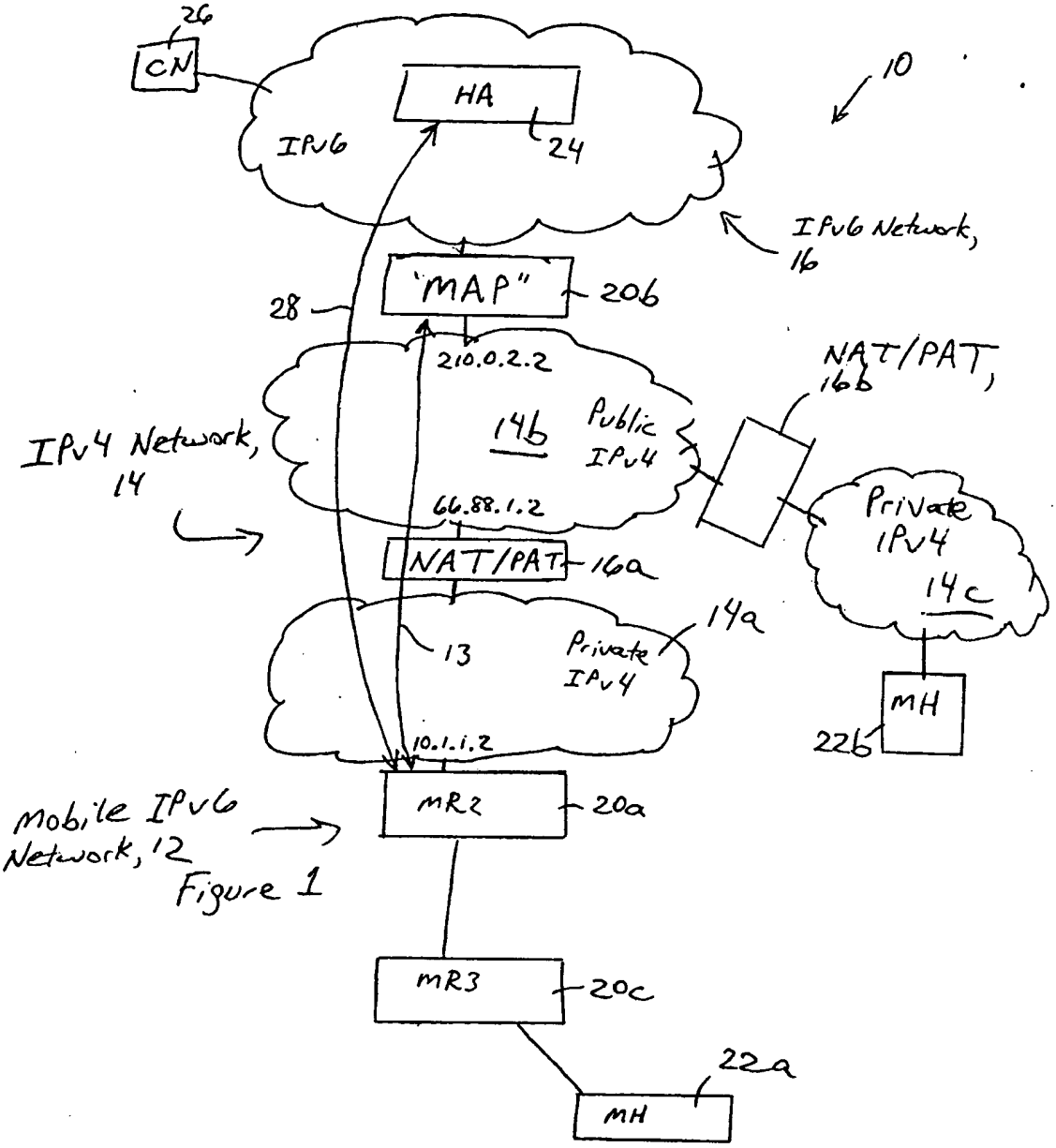

26
CN
HA
24
IPv6
10
IPv6 Network,
16
"MAP"
206
28
210.0.2.2
NAT/PAT,
166
IPv4 Network,
14
146
Public
IPv4
66.88.1.2
Private
IPv4
14c
NAT/PAT
160a
14a
13
Private
IPv4
MH
226
10.1.1.2
Mobile IPv6
Network, 12
MR2
20a
MR3
20c
22a
MH

Figure 1

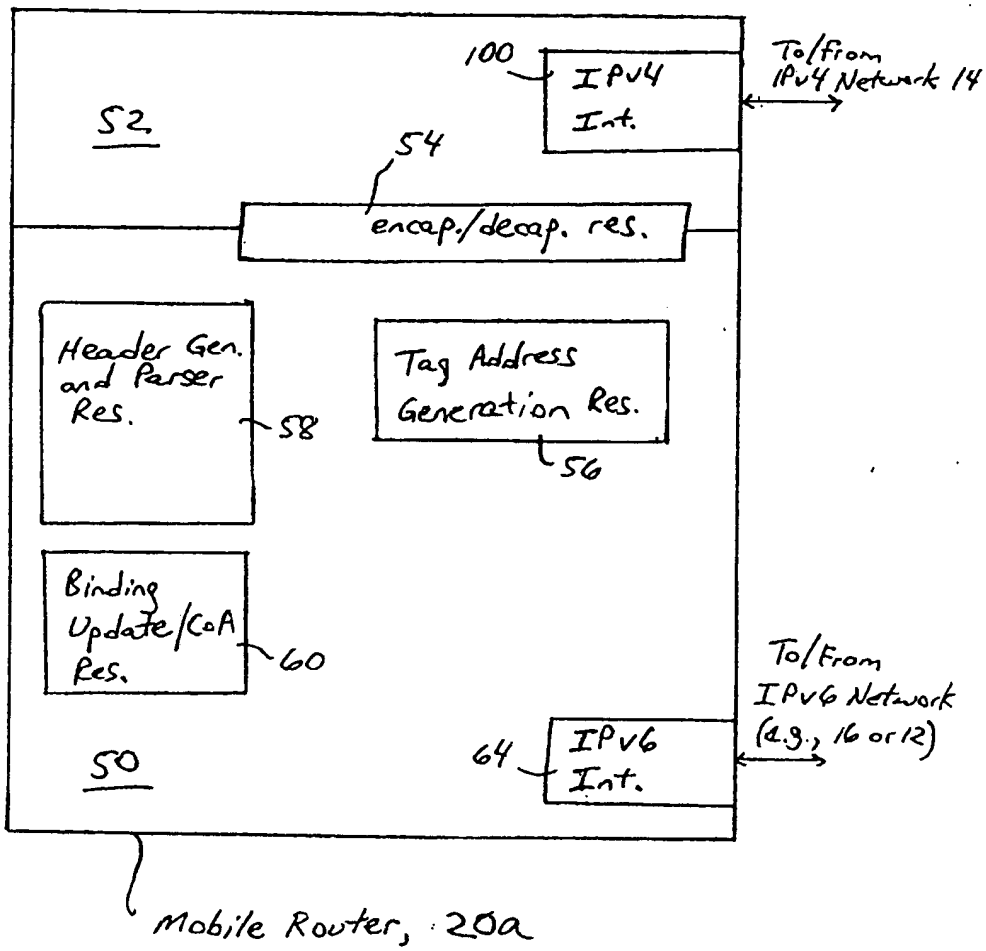

100
IPv4 Int.
To/From IPv4 Network 14
52
54
encap./decap. res.
Header Gen. and Parser Res.
58
Tag Address Generation Res.
56
Binding Update/CoA Res.
60
To/From IPv6 Network (e.g., 16 or 12)
50
64
IPv6 Int.
Mobile Router, 20a

Figure 2A

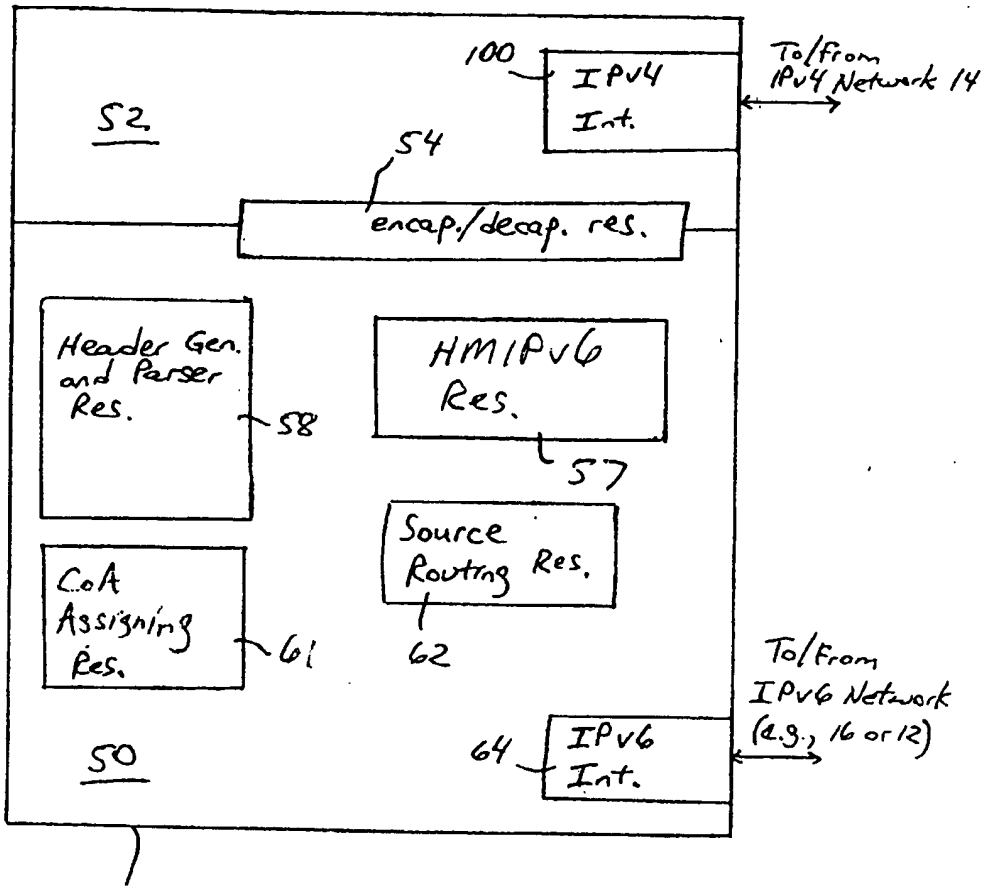

100
IPv4 Int.
To/From IPv4 Network 14
52
54
encap./decap. res.
Header Gen. and Parser Res.
58
HMIPv6 Res.
57
Source Routing Res.
62
CoA Assigning Res.
61
To/From IPv6 Network (e.g., 16 or 12)
50
64
IPv6 Int.
Mobility Anchor Point, 206

Figure 2B

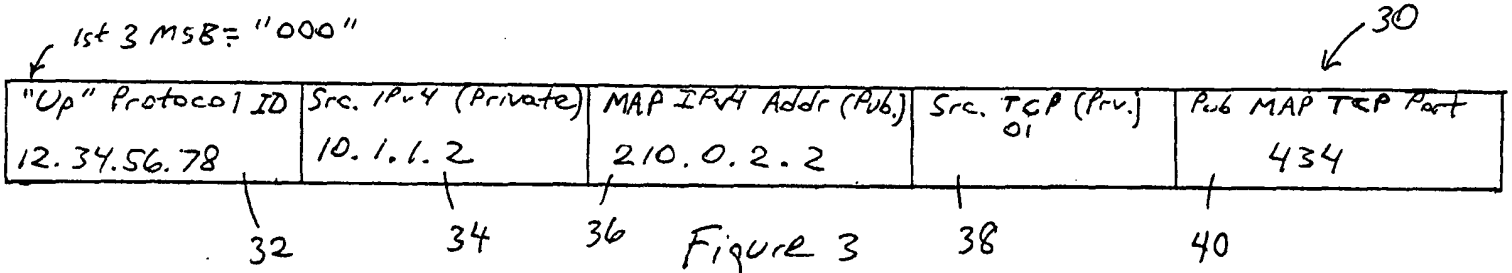
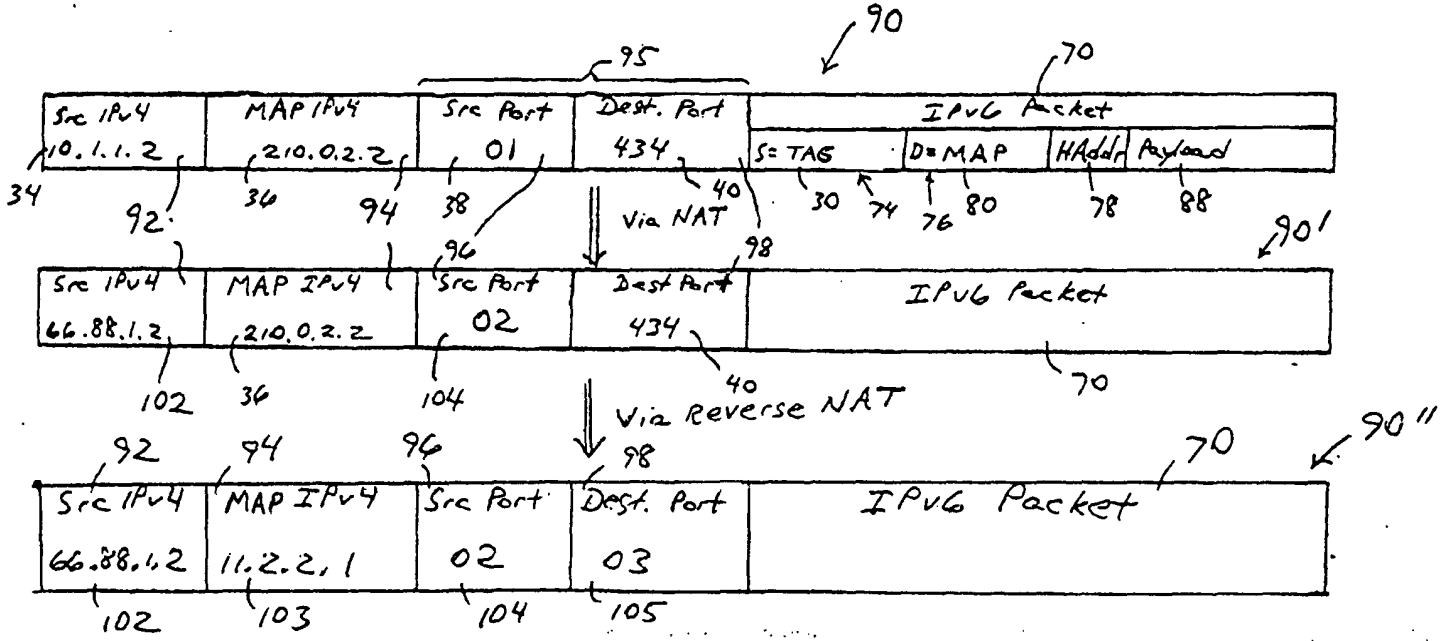


Figure 3

Figure 4



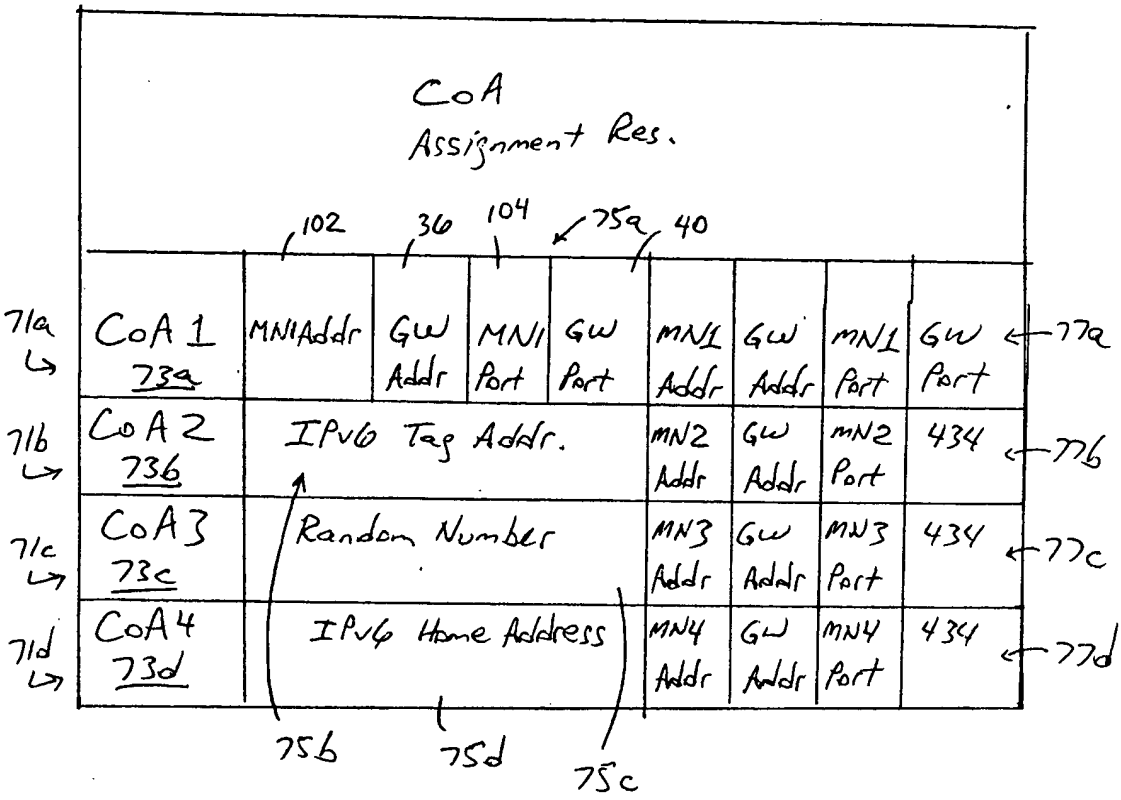

CoA
Assignment Res.
102
36
104
75a
40
71a
CoA 1
73a
MN1Addr
GW Addr
MN1 Port
GW Port
MN1 Addr
GW Addr
MN1 Port
GW Port
77a
71b
CoA 2
73b
IPv6 Tag Addr.
MN2 Addr
GW Addr
MN2 Port
434
77b
71c
CoA 3
73c
Random Number
MN3 Addr
GW Addr
MN3 Port
434
77c
71d
CoA 4
73d
IPv6 Home Address
MN4 Addr
GW Addr
MN4 Port
434
77d
75b
75d
75c
61

Figure 5

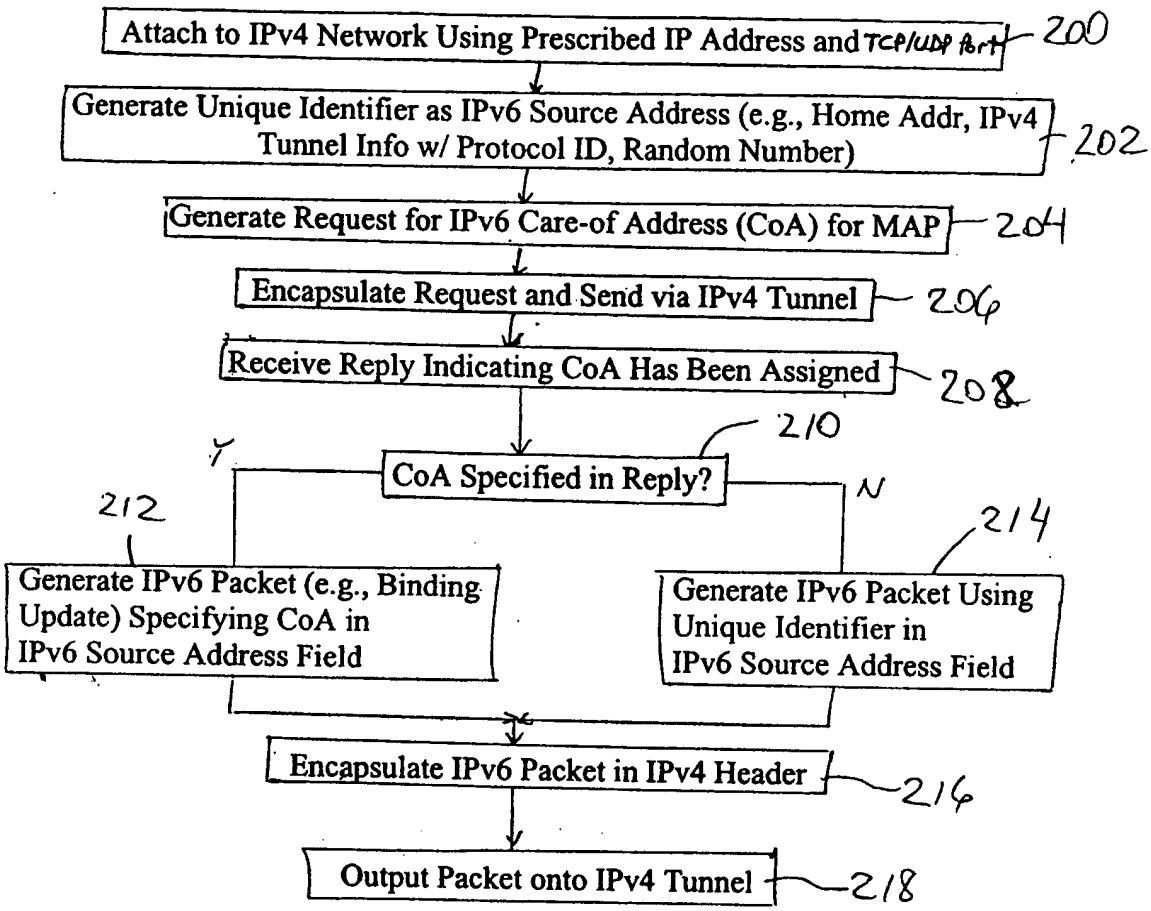

Attach to IPv4 Network Using Prescribed IP Address and TCP/UDP Port
200
Generate Unique Identifier as IPv6 Source Address (e.g., Home Addr, IPv4 Tunnel Info w/ Protocol ID, Random Number)
202
Generate Request for IPv6 Care-of Address (CoA) for MAP
204
Encapsulate Request and Send via IPv4 Tunnel
206
Receive Reply Indicating CoA Has Been Assigned
208
210
CoA Specified in Reply?
Y
N
212
214
Generate IPv6 Packet (e.g., Binding Update) Specifying CoA in IPv6 Source Address Field
Generate IPv6 Packet Using Unique Identifier in IPv6 Source Address Field
Encapsulate IPv6 Packet in IPv4 Header
216
Output Packet onto IPv4 Tunnel
218

Figure 6A

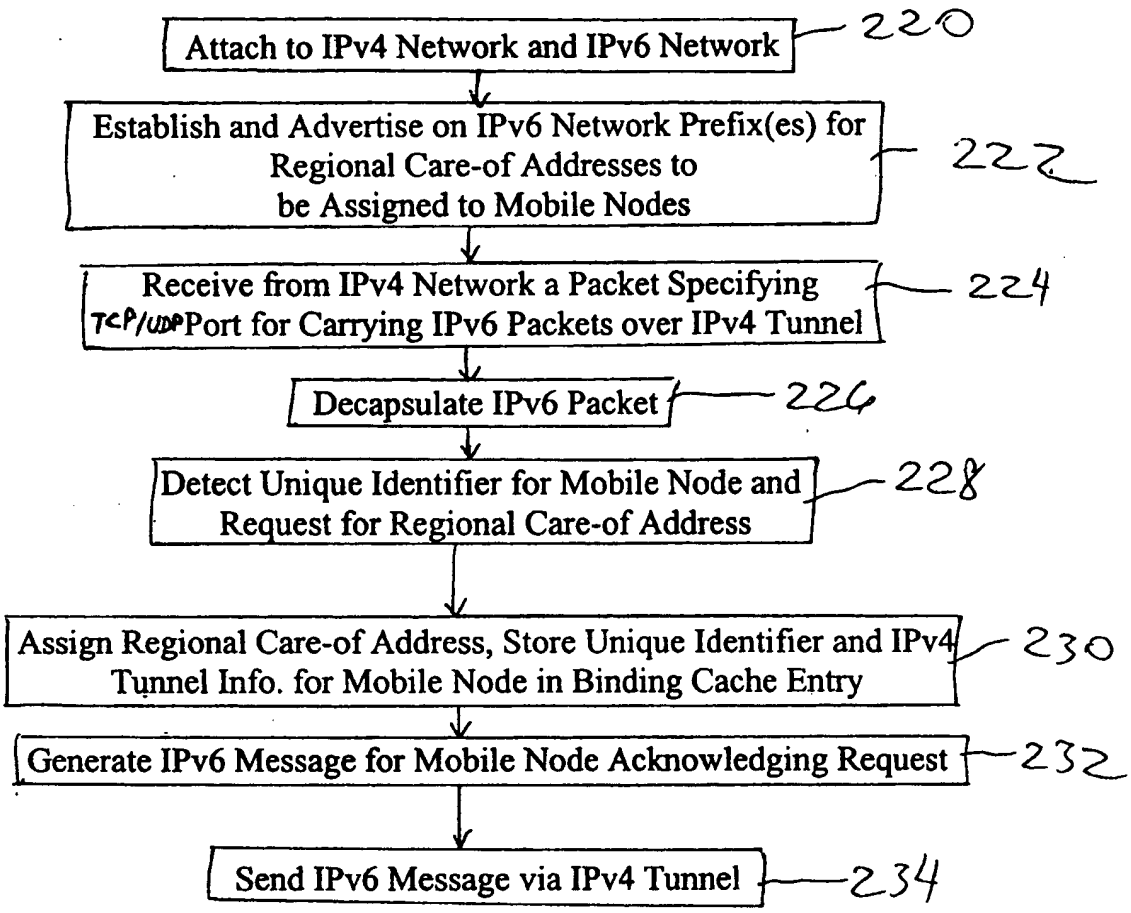

Attach to IPv4 Network and IPv6 Network
220
Establish and Advertise on IPv6 Network Prefix(es) for Regional Care-of Addresses to be Assigned to Mobile Nodes
222
Receive from IPv4 Network a Packet Specifying TCP/UDP Port for Carrying IPv6 Packets over IPv4 Tunnel
224
Decapsulate IPv6 Packet
226
Detect Unique Identifier for Mobile Node and Request for Regional Care-of Address
228
Assign Regional Care-of Address, Store Unique Identifier and IPv4 Tunnel Info. for Mobile Node in Binding Cache Entry
230
Generate IPv6 Message for Mobile Node Acknowledging Request
232
Send IPv6 Message via IPv4 Tunnel
234

Figure 6B

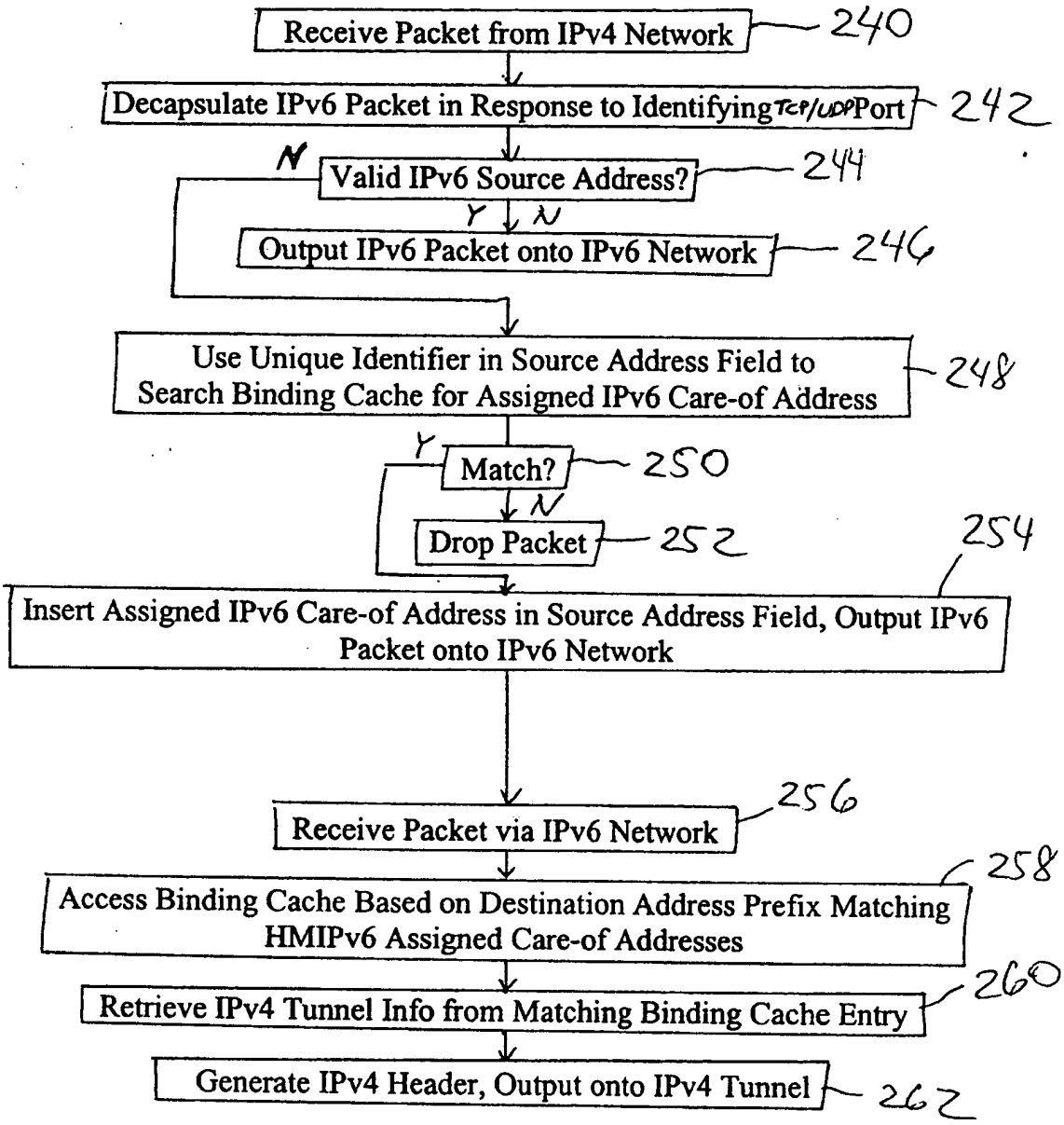

Receive Packet from IPv4 Network
240
Decapsulate IPv6 Packet in Response to Identifying TCP/UDP Port
242
N
Valid IPv6 Source Address?
244
Y
N
Output IPv6 Packet onto IPv6 Network
246
Use Unique Identifier in Source Address Field to Search Binding Cache for Assigned IPv6 Care-of Address
248
Y
Match?
250
N
Drop Packet
252
254
Insert Assigned IPv6 Care-of Address in Source Address Field, Output IPv6 Packet onto IPv6 Network
256
Receive Packet via IPv6 Network
258
Access Binding Cache Based on Destination Address Prefix Matching HMIPv6 Assigned Care-of Addresses
260
Retrieve IPv4 Tunnel Info from Matching Binding Cache Entry
Generate IPv4 Header, Output onto IPv4 Tunnel
262

Figure 6C

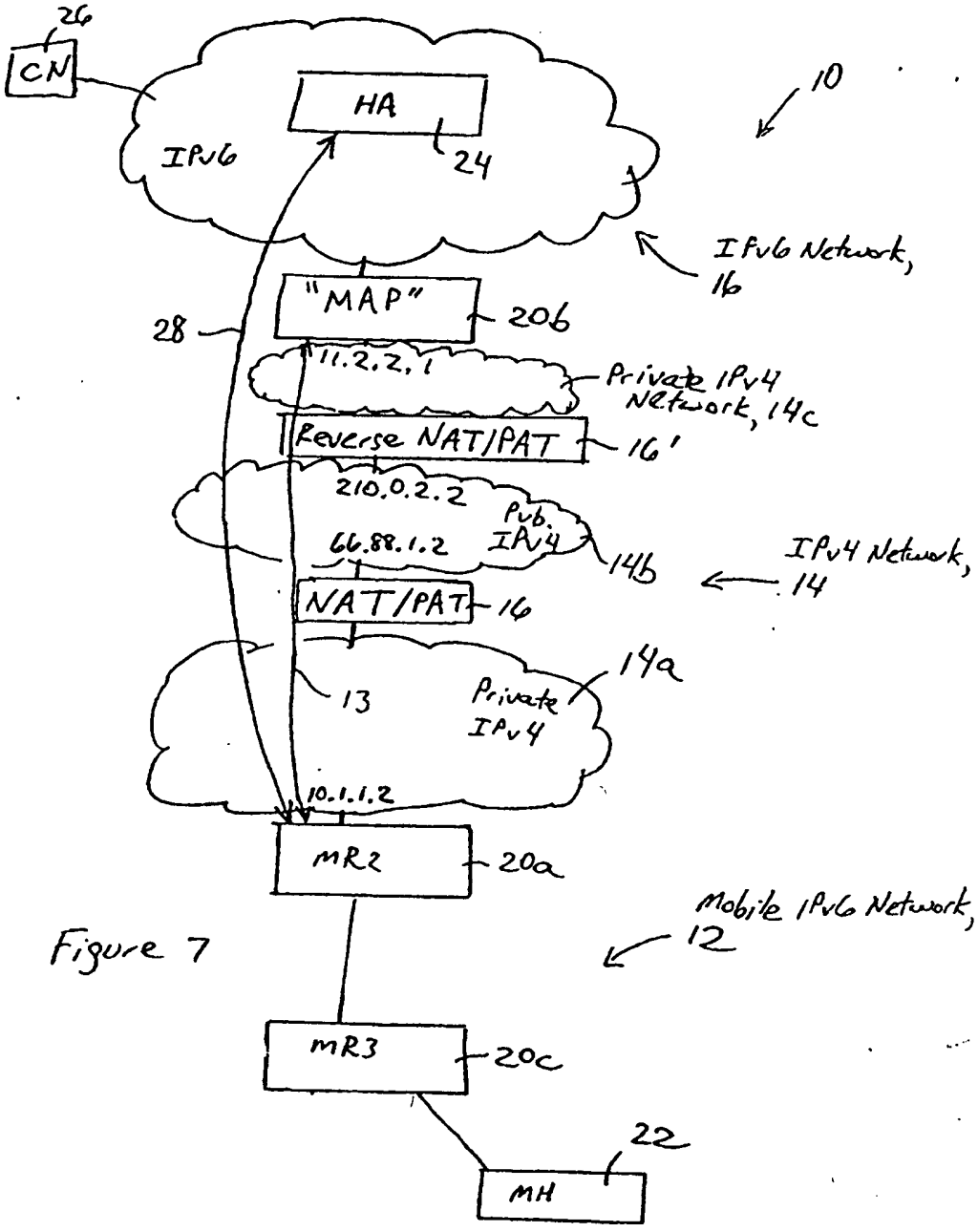

26
CN
HA
24
IPv6
10
IPv6 Network,
16
"MAP"
206
28
11.2.2.1
Private IPv4
Network, 14c
Reverse NAT/PAT
16'
210.0.2.2
Pub.
IPv4
66.88.1.2
14b
IPv4 Network,
14
NAT/PAT
16
14a
13
Private
IPv4
10.1.1.2
MR2
20a
Mobile IPv6 Network,
12
MR3
20c
22
MH

Figure 7